AMERICAN MEDICAL MEETING.

Whatever you do, don't forget two things: The Exposition is to open its doors officially on the date originally designated and it is going to be a tremendous success; bigger than we could have expected. And also, the American Medical Association is going to meet in San Francisco in the third week of June 1915—June 22nd is the beginning of the week. Remember it and make your plans early so that you may attend this meeting. It is not very often that you will have the opportunity of attending a meeting of so many of the big ones of the land with so little effort of time and energy and of expense as will be the case next year; and it will do you a lot of good to meet them and to hear what they have to say.

PROGRESS OF PEDIATRICS.

I. PROBLEMS OF BREAST NURSING.

It has been shown that unless the breasts of a nursing mother are regularly and sufficiently emptied, the composition of the breast milk is changed by absorption. The protein and sugar are re-absorbed first, the fat is not absorbed as rapidly, so that the remaining milk is apt to be higher in fat and lower in protein and sugar than the milk normally secreted. Completely emptying the breasts is the best way to stimulate an increased flow. The quantity of milk secreted depends on the strength and weight of the baby. A strong baby is able to get more than a weak one, and consequently gets not only a larger supply but a supply of better quality, although the weak baby may need a larger quantity and a milk with a more normal composition. Both of these points as to the quality and quantity of breast milk are important questions, the regulation and careful management of which make for successful breast nursing.

Whenever lactation is interrupted for a few days or when the breasts are drying up, colostrum bodies, which are large leukocytes which have taken on the power of emulsifying fat drops and absorbing them, reappear and disappear when the breasts are sufficiently emptied of milk. The presence of the leukocytes is for the phagocytosis of bacteria. Staphylococci are often found in milk from healthy women. Normally these organisms have no pathogenic significance only in case there is an intestinal indigestion in the baby they may become pathogenic.

It is possible to greatly increase the quantity secreted ordinarily by demanding more from the breast glands. This is well illustrated in the case of a wet nurse, who not only nurses her own baby successfully but also produces from 700 c.c. to 1000 c.c. of milk pumped daily from her breasts or in another case where the wet nurse successfully nursed five babies.

When cow's milk is acidified the resulting coagulum is large and comparatively tough while in human milk it is more difficult to obtain a coagulum. The precipitate is finer. This is due to the low calcium content in human milk as compared to cow's milk and to the relatively greater alkalinity of human milk. Casein or the insoluble proteid is present in considerably smaller amounts in human milk, while the soluble proteid, the lactalbumin and globulin are present in much larger proportions. The lactalbumin or whey of human milk is very much more easily digestible than is the lactalbumin or whey of cow's milk. In fact in certain types of metabolic derangements, the whey of cow's milk is positively injurious, while in the same cases human milk or the casein part of cow's milk is well tolerated. The recognition of this fact is important in the treatment of pronounced decomposition or atrophy cases.

In human milk, fat is found in a much finer emulsion than in cow's milk. The percentage of fat is lowest at the beginning of nursing and increases steadily till at the end of nursing it is highest. This is a very important consideration in the examination of breast milk. Often the first drawn milk will have only 1% of fat, and it seldom has as high as 3%, while the milk taken after the baby has nursed 10 or 15 minutes or the last of the milk pumped from a wet nurse who is accustomed to having her breasts pumped will often be as high as 6% or 10% fat. This fact alone accounts for the reason why so many mothers are told that their milk is too weak to nourish the baby. It must be remembered that due to nervous influences the first time a mother has her breasts pumped she is very likely to give up comparatively little milk, not because she is unwilling to do so but under the abnormal excitement of having her breasts pumped the glands do not secrete well. This is very well illustrated among wet nurses in a hospital where they have to pump their breasts. When they start out they are often only able to get from 15 to 30 c.c., after a few days of practice they are able to pump several 100 c.c. at a sitting. Not only does the amount vary in such cases but the whole analysis is different so that estimations made of breast milk are very unsatisfactory, misleading and of necessity erroneous. Of course, a person experienced in pumping milk from breasts can often succeed in getting a normal supply where an inexperienced person would fail utterly. This is amply illustrated in the hospital, the head nurse can obtain from 50 to 100 c.c. more milk when she pumps the wet nurses than when it is left to a pupil or a new nurse to pump.

A great deal has been written on whether it is possible or not to influence the quantity or quality of milk by varying the diet of the mother. In an underfed or improperly fed mother there is no doubt that quite marked success is obtained in not only increasing the amount but improving the quality of the milk though this does not always

hold true. Starving mothers, as was the fact in the last siege of Paris, were known to be nursing perfectly healthy babies who apparently increased in weight at a normal rate. If fat is given in the diet of an underfed woman the fat in her milk will increase up to a certain point. In mothers who are eating their normal amount of food both in quality and quantity little or no definite or permanent change can be made in either the quality or quantity of her milk supply. More is often accomplished in regulating the daily life of the mother, relieving her of fatiguing work or removing causes of worry and anxiety, seeing that she gets sufficient rest, unbroken sleep and a normal amount of recreation, than can be done by changes of diet and forced feedings.

Few drugs affect the secretion of milk, the glandular extracts of the posterior lobe of the pituitary body, the pineal gland and the corpus luteum, have been shown to exert more or less powerful influences on the quantity of milk secreted. Experimentally this is true, from a practical standpoint little has been done with any of these glandular extracts in their capacity of galactagogs.

At puberty the active development and internal secretions of the ovary stimulate the breast glands to growth but it is doubtful if the ovarian secretion is the cause of the hyperplasia of breast glands during pregnancy. Fetal extracts have been found to stimulate lactation more than ovarian but whatever the normal factors are in the development and activity of the breast glands during lactation they are illusive when used artificially. The most powerful stimulant is the active sucking of the infant and the natural law of increased demand by the infant is normally answered by an increased supply as is found in the vast majority of nursing cases and illustrated in a most demonstrable way in the case of wet nurses. On the side of the mother's nervous influences, a normal life from the standpoint of work and diet play the greatest role.

The presence of certain drugs in the milk when they are being taken by the nursing mother have been proven but they are only found in traces unless the amounts consumed are very large. Alcohol is found in milk only after the consumption of large amounts and then is found only in small amounts. Opium and atropin may be excreted in the milk, though they have never been demonstrated in human milk they have been found to go over into the milk of animals. Certain drugs are found in small quantities in the milk when they are being taken, such as potassium iodide, salicylate, aspirin, calomel, arsenic, mercury, bromides, urotropin, antipyrin, iodinized oils, and the effects of saline cathartics are not infrequently noticed in the nursing baby. Salvarsan has been demonstrated in the milk of mothers who have had intravenous injections and improvement in the baby's condition is often very marked after maternal treatments.

Nervous influences, however, play the greatest role in the control of not only the amount of milk secreted but also have a very pronounced influence on the composition of the milk, often changing it so that the baby is made most uncomfortable or even ill. What the chemical changes are, produced by such nervous influences, are not known, but certain it is from hundreds of close clinical observations. How often a mother's excitement over a theatre party, a dinner, or over the company of her friends in for afternoon tea or bridge, has meant an uncomfortable crying baby during most of the night, or an increase in the number of stools and the presence of mucus and of a green color that alarms the mother and she sends for the doctor. The avoidance of such nervous influences by giving a bottle feeding to the baby whenever the mother is under such excitement is one of the arguments for at least one substitute feeding a day. Anger, fright, grief, excessive sexual indulgence or physical fatigue may produce the same results.

The latitude given by allowing one bottle feeding a day often prolongs the period over which a mother is willing or even able to continue nursing as it will give her at some period of a day a six or eight hour interval in which to do as she pleases, go or come, work or play, as necessity or inclination demands. It also makes weaning much easier and more gradual. The baby is accustomed to the bottle and when it is increased to two and then three and finally complete bottle feedings, the transition is made with the least amount of trouble to both mother and child. If this is carried out 90% of mothers can or will nurse their babies the first three months and 50% will do so for over six months with quite a goodly proportion continuing to give one or two breast nursings till the baby is eight or ten months old. At that time most babies of American mothers should be weaned and a mixed feeding of milk and cereal started.

The transmission of toxins from mother to child through the milk has been proved. Vegetable poisons, alkaloids, glycosids and amids, as well as volatile and ethereal oils, and dibasic organic acids may go over in the milk.

Immunity both active and passive is transmitted by means of the milk from the mother to the child. The natural immunity of the newborn infant to certain of the contagious diseases is regarded as probably of intrauterine origin. The transfer of diphtheria immunity through the milk of mothers given antitoxin has been demonstrated. The infant acquires approximately from 1/15 to 1/30 of the amount of immunity acquired by the mother; the immune bodies are transferred in the lactalbumin and globulin of the milk.

There are few positive indications to weaning a newborn infant. Of course, if the mother has no milk, a wet nurse or substitute feedings must be obtained. Generalized active tuberculosis is one of the few positive contraindications to nursing. However, localized tuberculosis such as tuberculosis of the kidney, bone tuberculosis or glandular tuberculosis, does not necessarily preclude a mother nursing; it would then depend on whether the general health of the mother was impaired by the nursing; in some cases it undoubtedly would be, in others it would not. The chances of infecting the baby would have to be considered. In all chronic

diseases, as cardiac, nephritis, Basedow's, or very frail women, it is more a question of the effect on the mother's general condition and strength than on her actual ability to nurse her baby that must decide the question of weaning. Insanity is a contraindication unless someone is constantly with the mother during nursing and even then it is often a dangerous risk. Epilepsy is also a contraindication unless the mother can be watched during nursings. During prolonged, acute, infectious diseases weaning is usually to be advised because of danger of transmission and because the drain on the mother's strength is often too much. However, during short febrile attacks, if contagion or infection of the baby can be avoided or minimized, there is no need of weaning. Infection of the glands of one breast need not stop nursing of the other. In fact the infected breast will usually recover much more rapidly if it is thoroughly and regularly emptied by pumping out the milk, however painful this process may be.

In this as in most things, prevention is much to be desired over cure. Mastitis is at best a tedious and painful condition and can be successfully avoided by proper care of the breasts, a care which should begin at least six weeks before the baby is born, by regular massage, bathing and so hardening the nipples that they will not crack. If the nipples are washed off with boracic acid water two or three times a day and the breasts lightly massaged, retracted nipples pulled out either by manipulation or by suction with a breast pump, abrasions and cracked nipples will be less frequent and the greatest causes of infected breasts removed. The careful cleaning of the breasts before and after nursing are factors only to be mentioned to realize its importance. The complete emptying of the breasts is also a much neglected factor in the occurrence of breast infections. A vigorous, healthy baby will usually completely empty the breasts, but where this is not done a breast pump will prevent not only much discomfort by emptying the breast but will also prevent caking of the breast and will further prolong the activity of the breasts up to such a time as the baby is strong enough to empty the breasts by itself.

Menstruation does not usually affect the milk except in cases where the flow is excessive, in which case the quantity of milk may be diminished or if the mother is markedly weakened or indisposed, there may be a temporary change in the milk for the period of one or two days, during this time one or two extra bottle feedings may be instituted and nursing resumed when the mother is herself again. But to advise weaning because menstruation has begun is a mistake in the vast majority of cases.

Pregnancy in itself is an indication for weaning only after the third month. Often a pregnant mother is able to nurse without any effect on her general condition and health until the sixth month, after that it should be discontinued because of the mother's own condition, uncontrollable nausea or general fatigue or weakness being in themselves sufficient causes for weaning.

WILLIAM PALMER LUCAS.

ORIGINAL ARTICLES

DUODENAL FEEDING—A PRACTICAL DEMONSTRATION.*

By HARRY G. WATSON, M. D., Los Angeles.

The method of duodenal feeding was introduced about four years ago by Prof. Max Einhorn, whom I have had the pleasure of assisting for many years at the New York Post-Graduate Medical School and Hospital. The introduction of the duodenal tube has been a wonderful help in the diagnosis and treatment by medicines and food of gastro-intestinal disease, from babyhood to old age. The duodenal tube is a soft rubber tube about a meter in length and 3.5 m.m. in diameter ending in a gold perforated tip.

Dr. Einhorn's duodenal feeding apparatus is made by Tiemann & Co., of New York, and consists of the following:

1. The duodenal tube with a gold perforated tip.
2. A triple petcock, one rubber tube connecting with the duodenal tube, one with the glass of nourishment and the other with the glass syringe.
3. A flat piece of wood covering the glass.

The duodenal tube is swallowed by the patient at night and allowed to go as far as the line marked on the tube about 80 c.m. and the tip will then be in the duodenum. If there is obstruction at the pylorus or much pylorospasm the tube may be delayed or may not enter the duodenum at all. The principle of this method of feeding is to give the stomach rest, which you know is the best state for a diseased organ. The following are the principal indications for duodenal feeding:

1. Ulcer of the stomach and duodenum.
2. Any condition of the stomach where rest is indicated.
3. Gastroptosis with or without stasis where there is no organic obstruction.
4. Where nutrition by the stomach seems impossible as in cardiospasm, pylorospasm, nervous vomiting, or severe vomiting of pregnancy.
5. In inoperable malignant conditions of the stomach or cardia, if the tube can pass through the stomach into the duodenum, this will prevent vomiting and decomposition of food in the stomach.
6. Dr. Einhorn recommends it in cirrhosis of the liver.
7. In the treatment of amebic dysentery it is recommended by Dr. W. Gerry Morgan of Washington that the ipecac be administered direct with the duodenal tube. This is also recommended by Dr. Vedder of the United States army in connection with hypodermic injection of emetine which kills the ameba in the tissue while ipecac destroys them in the intestinal tract.

There are several ways of testing whether or not the tube is in the duodenum. If air is forced through, the patient can feel the air if the tip is in the stomach but not so if the tube is in the duodenum. Secondly, if the tip is in the

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